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authentication process can be carried out. In a case where the SIM is the SIM of a subscriber to a particular cellular telecommunications network, the authentication process can be carried out by that network.

It should be noted that the authentication process being described does not necessarily authenticate the human identity of the user. For example, cellular telecommunication networks have pre-pay subscribers who are issued with SIMs in return for pre-payment enabling them to make calls on the network. However, the identity of such pre-pay subscribers is not known (or not necessarily known) by the networks. Nevertheless, such a user cannot make use of the network until the network has authenticated that user's SIM – that is, has confirmed that such user is a particular user who has a particular pre-paid account with the network. The SIMs of such pre-paid users or subscribers could equally well be used (in the manner described) in or in association with data processing apparatus or computers, for the purposes of authenticating that user.

The SIM need not take the form of a physical (and removable) smart card but instead can be simulated by being embedded in the data processing apparatus or computer in the form of software or represented as a chip for example.

It may be desirable to be able to change the authentication information on the SIM (or simulated SIM) to take account of changed circumstances. For example, the SIM may be a SIM registered with a particular cellular telecommunications network – a network applicable to the country or region where the data processing apparatus or computer is to be used. However, circumstances may arise (for example, the apparatus or the computer is physically moved to a different country or region) in which it is desirable or necessary to re-register the SIM with a different cellular telecommunications network. Ways in which this can be done are disclosed in our co-pending United Kingdom patent applications Nos. 0118406.8, 0122712.3 and 0130790.9 and in our corresponding PCT applications Nos. GB02/003265, GB02/003260 and GB02/003252. As described therein

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CLAIMS

1. A method for authenticating a transaction with data processing apparatus in which the data processing apparatus has operatively associated with it authentication storage means for storing predetermined authentication information, and including the step of carrying out an authentication process via a communications link for authenticating the transaction, the authentication process involving the use of the predetermined authentication information.
2. A method according to claim 1, in which the transaction is a transaction involving use of the data processing functions of the data processing apparatus.
3. A method according to claim 1 or 2, in which there is a plurality of the authentication storage means.
4. A method according to claim 3, in which the step of carrying out the authentication process is at least partly carried out by authentication means which is common to all the authentication storage means of the said plurality thereof.
5. A method according to claim 3 or 4, in which each authentication storage means is associated with a specific data processing apparatus.

- 6 A method according to claim 1 or 2, in which there is a plurality of the authentication storage means each respective to a particular one of a plurality of specified users of the data processing apparatus, and in which the authentication process involving the use of the predetermined information from a particular one of the authentication storage means authenticates a transaction by the one of the specified users which is respective to that authentication storage means.
7. A method according to claim 6, in which the step of carrying out the authentication process is at least partly carried out by authentication means which is common to all the users.
8. A method according to claim 7, in which the authentication means which is common to all the users is authentication means which is part of a system with which all the authentication storage means are registered.
9. A method according to claim 8, in which the system is a telecommunications network and in which the predetermined information stored by the authentication storage means for each user corresponds to information used to authenticate that user in relation to the telecommunications network.
10. A method according to claim 8 or 9, in which each user is authenticated in the system by means of the use of a smart card or subscriber identity module (e.g. SIM), and

in which the authentication storage means respective to that user corresponds to or simulates the smart card for that user.

11. A method according to any one of claims 8 to 10, including the step of registering one or more of the authentication storage means with a different system.

12. A method according to any preceding claim, in which the authentication storage means is associated with the data processing apparatus by being associated with data or software for use by that data processing apparatus.

13. A method according to claim 12, in which the authentication storage means is incorporated on a data carrier for the data or software.

14. A method according to any preceding claim, in which the authentication process involves the sending of a message and the generation of a response dependent on the message and the predetermined information.,

15. A method according to any preceding claim, including the step of levying a charge for the transaction when authenticated.

16. A method according to any one of claims 8 to 11, including the step of levying a charge for the transaction when authenticated, the step of levying the charge being carried

out by the said system.

17. A method according to any preceding claim, in which the data processing apparatus is a personal computer.
18. Data processing apparatus in combination with authentication storage means storing predetermined information relating to the authentication of a transaction with the data processing apparatus, the authentication storage means when operatively associated with the data processing apparatus being responsive to an authentication process carried out via a communications link for authenticating the transaction, the authentication process involving the use of the predetermined information.
19. Apparatus according to claim 18, in which the transaction is a transaction involving use of the data processing functions of the data processing apparatus.
20. Apparatus according to claim 18 or 19, in which the authentication storage means is specific to the data processing apparatus.
21. Apparatus according to claim 18 or 19, in which there is a plurality of the authentication storage means each for storing predetermined authentication information respective to any one of a plurality of specified users and each relating to the authentication of a transaction with the data processing apparatus by the respective one of

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the specified users.

22. Apparatus according to claim 21, including remote authentication means for at least partly carrying out the authentication process and which is part of a system with which all the users are registered.

23. Apparatus according to claim 22, in which the system is a telecommunications network and in which the predetermined authentication information respective to each user corresponds to information used to authenticate that user within the telecommunications network.

24. Apparatus according to claim 22, in which each user is authenticated in the system by means of the use of a subscriber identity module (SIM) in the form of a smart card, and in which the authentication storage means respective to that user corresponds to or simulates the subscriber identity module for that user.

25. Apparatus according to any one of claims 18 to 24, in which the authentication process involves the sending of a message and the generation of a response dependent on the message and the predetermined information.

26. A data carrier carrying data for use in and by data processing apparatus, the data carrier also incorporating authentication storage means storing predetermined

authentication information responsive to an input message for deriving a response dependent on the input message and on the authentication information for use in a remotely operative authentication process for authenticating a transaction involving use of the data carried by the data carrier.

27. A data carrier according to claim 26, in which the data carried by the data carrier includes software.

28. A data carrier according to claim 26 or 27, in which the authentication storage means is one of a plurality of such authentication storage means which are registered with a common system, including authentication means for carrying out the authentication process.

29. A data carrier according to claim 28, in which the common system is a telecommunications network.

30. A data carrier according to claim 29, in which the telecommunications network has a plurality of users registered therewith which are authenticated therein by means of the use of respective subscriber identity modules (SIMs) in the form of smart cards, and in which the authentication storage means corresponds to or simulates such a subscriber identity module.

31. A method according to any one of claims 1 to 17, wherein the authentication storage means communicates wirelessly to authenticate the transaction.
32. A method according to claim 10, wherein the smart card or SIM authenticates the transaction when the smart card or SIM is operable in a mobile terminal.
33. A method according to claim 10, wherein the smart card or SIM is further operable to authenticate a mobile terminal for use in the system.
34. A method according to any one of claims 1 to 17, wherein the authentication storage means is provided with a carrier coupleable to the data processing apparatus.
35. Apparatus according to any one of claims 18 to 29, wherein the authentication storage means communicates wirelessly to authenticate the transaction.
36. Apparatus according to claim 24, wherein the smart card or SIM authenticates the transaction when the smart card or SIM is operable in a mobile terminal.
37. Apparatus according to claim 24, wherein the smart card or SIM is further operable to authenticate a mobile terminal for use in the system.

38. Apparatus according to any one of claims 18 to 29, wherein the authentication storage means is provided with a carrier coupleable to the data processing apparatus.

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